(No Model.)

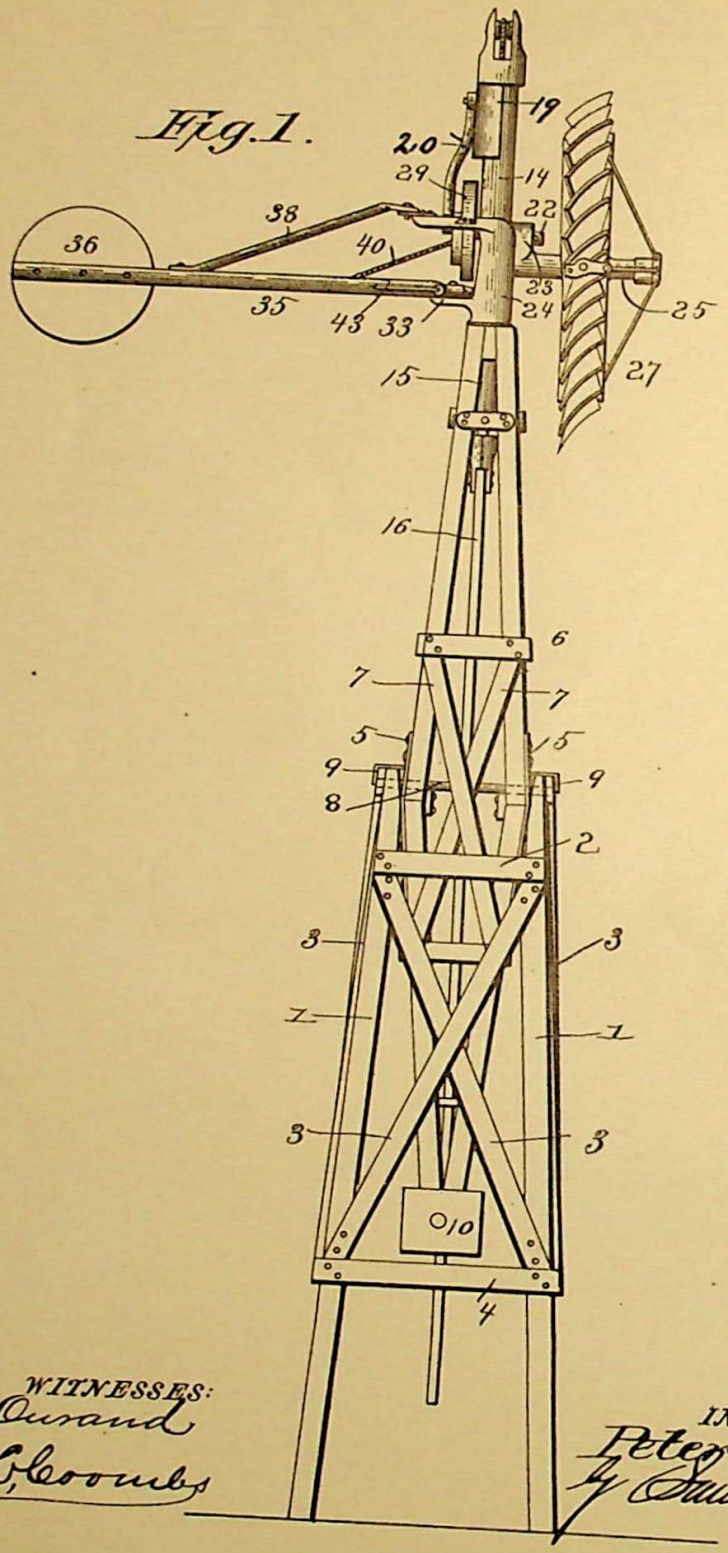
3 Sheets—Sheet 1.

# P. CLEMENS.

## WINDMILL.

No. 470,910. Patented Mar. 15, 1892.

Fig. 1.

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(No Model.) 3 Sheets—Sheet 2.

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## WINDMILL.

No. 470,910. Patented Mar. 15, 1892.

Fig. 4.

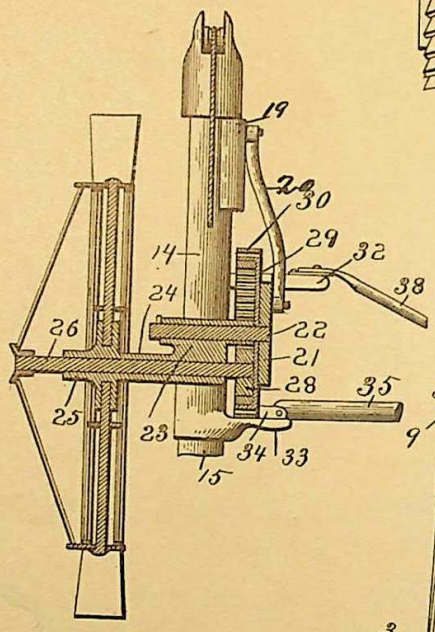
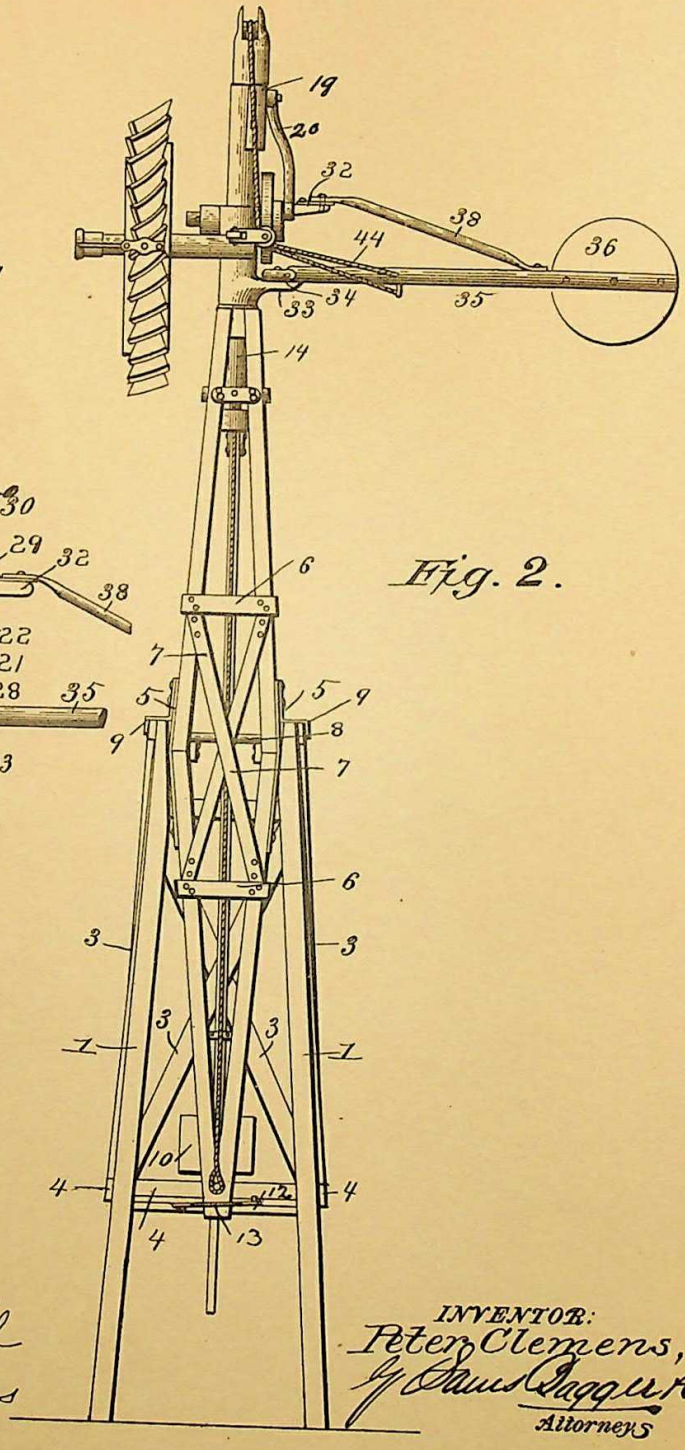



Fig. 2.

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(No Model.) 3 Sheets—Sheet 3.

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## WINDMILL.

No. 470,910. Patented Mar. 15, 1892.

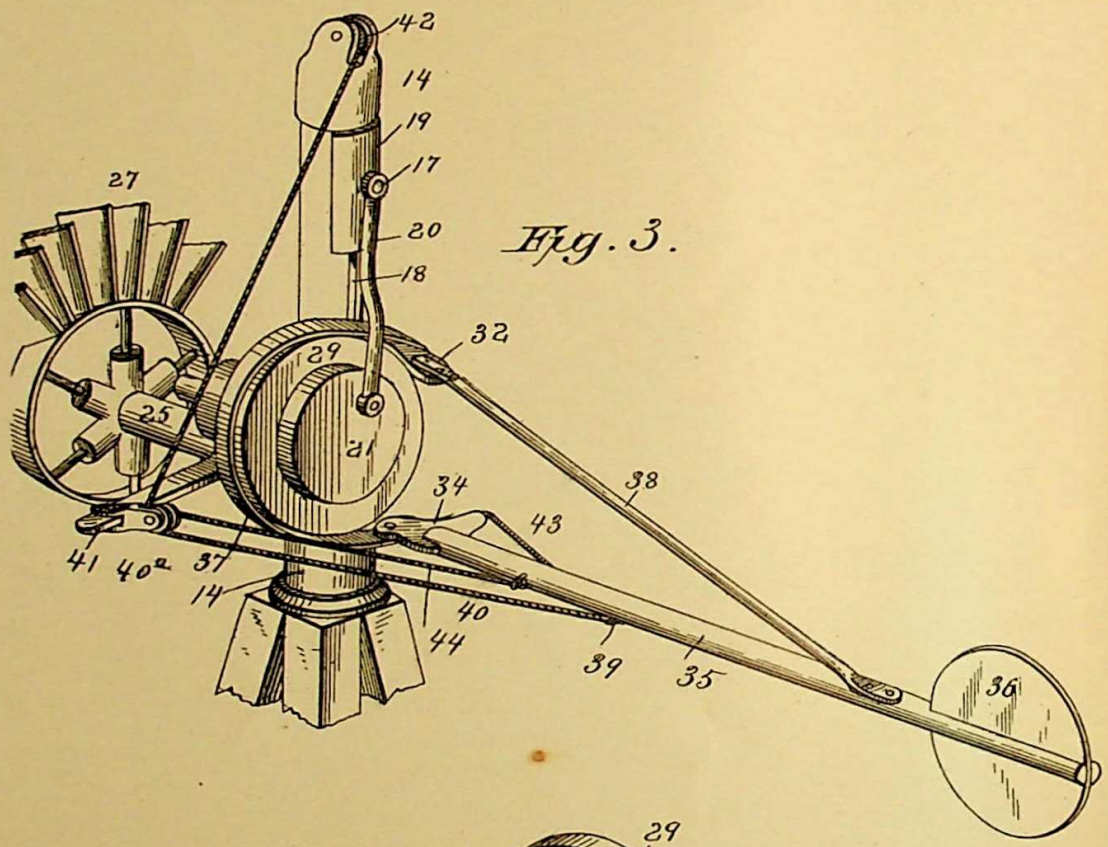


Fig. 3.

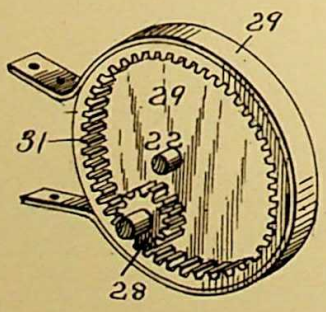


Fig. 5.

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# UNITED STATES PATENT OFFICE.

PETER CLEMENS, OF DANE, WISCONSIN.

## WINDMILL.

SPECIFICATION forming part of Letters Patent No. 470,910, dated March 15, 1892.

Application filed May 16, 1891. Serial No. 392,984. (No model.)

*To all whom it may concern:*

Be it known that I, PETER CLEMENS, a citizen of the United States, and a resident of Dane, in the county of Dane and State of Wisconsin, have invented certain new and useful Improvements in Windmills; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in windmills, the object being to provide an improved construction of gearing connecting the wind-wheel shaft and the pitman which drives the pump-rod and an improved brake mechanism, whereby superior results are obtained with respect to economy, simplicity, and efficiency.

The invention consists in the novel construction and combination of parts hereinafter fully described, and definitely pointed out in the claim.

In the accompanying drawings, Figure 1 is a side elevation of a windmill constructed in accordance with my invention. Fig. 2 is a similar view looking from another side. Fig. 3 is an enlarged view of the wind-wheel and connections. Figs. 4 and 5 are detail views.

In the said drawings, the reference-numerals 1 1 designate four uprights, two of which are connected together at the top by means of cross-bars 2 2. Upon three sides the uprights are provided with diagonal brace-bars 3 3, crossing each other at their centers. Near the lower part the uprights are also braced on the sides by the bars 4 4. These uprights and braces constitute a supporting-frame for the tower which carries the wind-wheel. This tower consists of two sections, each comprising four diagonal rods or bars, which are brought together and secured at one end, forming two pyramidally-shaped skeleton frames. These sections are joined together at their flaring ends by means of metal plates 5 5 and are braced by means of horizontal bars 6 6 and diagonal bars 7 7. Through the upper ends of two of the uprights 1 passes a pivot rod or bar 8, which also passes through the lower ends of two of the bars of the upper section of the tower, and the opposite bars of said section are provided with stop-plates 9, which engage with the upper end of the supporting-frame and limit the movement of the swinging tower and retain the same in a vertical position. The lower end of the tower is provided with a counterbalance-weight 10, and pivoted to a bar 12, extending diagonally across the supporting-frame, is a catch 13, by which the tower is locked when in a vertical position.

In the upper portion of the tower is located a hollow tube 14, the lower end of which extends a short distance below the top of the tower, while the upper end of which projects above the same. In this tube is located a hollow rod 15, which is connected with the pump-rod 16. The upper end of this rod 15 is provided with a lug 17, which projects through a vertical slot 18 in tube 14, where it is secured to a curved plate 19, to which is pivoted one end of a pitman 20. The other end of this pitman is pivoted to a crank-disk 21 on a driving-shaft 22. This shaft 22 is journaled in a journal box or bearing 23 of a circular or cylindrical casting 24, embracing and turning or revoluble on the sleeve 14. This casting is also provided with a journal box or bearing 25, in which is journaled the wind-wheel shaft 26, which carries an ordinary wind-wheel 27. Upon the opposite end of shaft 26 is a pinion 28, and upon shaft 22 is secured a wheel 29, consisting of a disk having an annular peripheral flange 30 with a plain exterior, while the inner portion is formed or provided with a number of cogs 31, which mesh with the pinion 28. This cog-wheel and pinion should be so constructed relatively to each other that the pinion will make about three revolutions to the cog-wheel's one, and the pump-rod, which is connected with the shaft of said cog-wheel through the medium of the hub, pitman, and curved plate, before described, will make one stroke to three revolutions of the wind-wheel.

The casting 24 on the side opposite the wind-wheel is provided with two projecting arms 32 and 33, to the lower one 33 of which is pivoted one end of a plate or bar 34, to which is secured an outwardly-extending rod 35, carrying at its free end a wind-vane 36. To the

opposite end of plate 34 is secured one end of a strip of spring-metal 37, which passes around the periphery of the flange 30 and has its other end secured to the arm 32, thus forming a brake, which is operated by the rod 35 of the wind-vane—that is to say, when the vane is turned so that the wind-wheel will be presented to the wind or in operative position, the brake is released or out of contact with the flange of the cog-wheel which operates the pump-shaft, while when the vane is turned so that the wind-wheel will be out of the wind the brake is applied and the cog-wheel prevented from turning.

The rod 35 is provided with a brace-rod 38, secured thereto and pivoted to arm 32, and intermediate of its ends is secured a staple 39, to which is attached one end of a cord 40, which passes over a pulley $40^a$ on an arm 41, secured to or formed with casting 24. Said cord also passes over a pulley 42 in the upper end of tube 14 and passes down through the hollow rod 15 to the lower end of the tower, where it is secured.

43 is a brace-rod for rod 35, and 44 is a cord for limiting the movement of rod 35.

The operation is as follows: By releasing the cord 40 the rod carrying the vane will occupy a position at right angles to the wind-wheel, presenting the latter to the wind, loosening the brake, and allowing the cog-wheel to freely rotate and reciprocate the pump-rod. When it is desired to render the device inoperative, the cord 40 is pulled until the arm and vane are turned into a position parallel with the wind-wheel, or at right angles to their former position. This will throw the wind-wheel out of the wind and apply the brake, and, through the medium of the pivoted plate to which the vane-rod is secured, as the end of said plate will be projected outward from the cog-wheel, thus bringing the brake-band in contact with the periphery of the annular flange thereon.

Having thus described my invention, what I claim is—

In a windmill, the combination, with a tower and a tube located at the upper part thereof, of a casting rotatable upon said tube and provided with bearings, the wheel-shaft and drive-shaft journaled in said bearings, a pinion secured to the end of the wheel-shaft, a disk or wheel having a plain periphery, and an annular flange provided with cogs meshing with said pinion, the projecting arms formed with said casting, the plate pivoted in one of said arms, the rod or shaft secured to said plate and provided with a vane, the spring-metal plate secured to one of the projecting arms and to said plate, the rope connected with said plate and passing through a staple on the vane-shaft intermediate of its ends, and the pulleys over or around which said rope passes, substantially as described.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

PETER CLEMENS.

Witnesses:
FREDERIC CRANEFIELD.
GEORGE O. DWYER.